

Herba suffruticosa erecta ad 1 m. alta caulibus ramosis glabris vel puberulis tuberculato-setosis. Foliola elliptico-lanceolata supra glabra subtus parce punctulata glabra vel setosa nervis 3-5 — gemmatis; foliolo terminali ad 10 mm. longo, 2.5 mm. lato; foliolis lateralibus ad 8 mm. longis, 2.5 mm. latis; petiolo 3-5 mm. longo glabro vel puberulo; rhachide 0.5-1.5 mm. longa; stipulae striatae vagina 3-6 mm. longa setosa vel tuberculato-setosa vel glabrata processibus subulato-mucronatis setosis 2-4 mm. longis. Spicae densae oblongoideae floribus 3-10; bracteis unifoliolatis vel trifoliolatis stipuliformibus vagina puberula vel tuberculato-setosa 3-6 mm. longa nervis 5-7; bracteola exterior 1, 2.0-3.5 mm. longa apice ciliata; axis rudimento ad 4 mm. longo, villosa; bracteola interior 1, 2.0-3.5 mm. longa apice ciliata. Calycis tubus 3-5 mm. longus lobis 1.5-2.5 mm. longis. Corolla lutea; vexillo suborbiculato 4.0-6.5 mm. longo; alis falcatis 3.0-4.5 mm. longis; carina 3.0-4.5 mm. longa. Lomentum circa 2 mm. latum valde reticulatum, articulo superiore 2-3 mm. longo puberulo, articulo inferiore 1.5-2.5 mm. longo villosa, rostro circa 2.0-2.5 mm. longo parce uncinato.

Stylosanthes suffruticosa is distinguished from *S. hamata* by its tuberculate bristles, from *S. tuberculata* by its two fertile articulations and its longer beak, and from *S. mucronata* of Africa by its smaller leaves and narrower spikes.

The specific epithet is derived from the subshrubby growth habit.

This species is known only from Lethem, Rupununi District, British Guiana.

BRITISH GUIANA: Rupununi: Lethem, *H. S. Irwin* 550 (US, holotype), 618 (US, paratype).

Additional locality records for other species of *Stylosanthes* follow:

S. angustifolia Vog. BRITISH GUIANA: Rupununi.

S. hamata (L.) Taub. UNITED STATES: Florida: Duval County.

S. viscosa Sw. UNITED STATES: Texas: Counties of Aransas, DeWitt, Kenedy, Nueces, Willacy. — SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE.

LITERATURE CITED

MOHLENBROCK, ROBERT H. 1957. A revision of the genus *Stylosanthes*. *Ann. Mo. Bot. Gard.* 44:299-355.

AN UNUSUAL HYBRID HELENIUM¹

JULIAN A. STEYERMARK

While botanizing in Missouri during 1957, I collected a most puzzling specimen of *Helenium*. Although it most closely resembled *H. flexuosum* Raf., it possessed at the same

¹Work on this paper was completed during the period when the author received grants-in-aid (G 5623, 7117) from the National Science Foundation.

time the yellow disk corollas and other characters associated with *H. autumnale* L. More detailed examination of the plant indicates that it may be a putative hybrid between *H. flexuosum* and *H. autumnale*, shedding additional light on the matter of the hybrid origin of *H. flexuosum*, as discussed by Dr. Rock in his latest revision of the vernal species of the genus (Rhodora 59: 101-116; 128-158; 168-178; 203-216. 1957).

In his key to species, Rock emphasizes the "predominantly quadrimerous" disk corollas of *H. flexuosum* with "4 lobes and 4 stamens" as well as the red-brown disk of that species (p. 149). In his description of *H. flexuosum* the "predominantly 4-merous" corolla "(both lobes and stamens)" is again emphasized by italics, and it is stated (pp. 111-112) that "all the vernal species except *H. flexuosum* are characterized by a 5-lobed apex. In *H. flexuosum*, however, the number of lobes is 4, rarely 5. This 5- and 4-lobed condition is further reflected in the anthers. In those taxa with a 5-lobed corolla, the number of anthers is 5 and in *H. flexuosum* the number of anthers is only 4."

Another character of importance is found in the ray-florets, which in *H. flexuosum* are completely devoid of either stamens or style, and the achenes of these ray florets are abortive and sterile. In contrast, in *H. autumnale* the ray florets are styliferous and the disk corollas are 5-lobed. So far as the color of the disk is concerned, the lobes of the disk corollas of *H. flexuosum* are red-brown, whereas in *H. autumnale* they are yellow with a yellow-green to greenish-yellow corolla-tube. Dr. Rock states (p. 112) that "Occasionally, some specimens of *H. flexuosum* will have a sordid-yellow disk, rather than red-brown, but such specimens are easily placed on other characters."

The Missouri specimen which appears to represent a hybrid between *H. flexuosum* and *H. autumnale* bears the following data: Howell County: open margins of dried sink-hole pond on south side of road N; T 25 N, R 9 W, sec. 1, 1½ mi. east of Pomona, October 19, 1957, *Steyermark 86003*. This collection has the following characters of *H. autumnale*: 1) 5-merous disk corollas; 2) styliferous ray

florets; 3) yellow disk corollas. The characters of *H. flexuosum* present in the specimen are the following: 1) short stature; 2) stouter and more elongated peduncles bearing relatively few flower heads in a more corymbosely branched inflorescence; 3) more broadly winged stem from base of stem to beginning of floral branches; 4) disk higher than broad and of larger size (in *H. autumnale* usually shorter or more hemispheric); 5) larger and longer disk florets; 6) longer pappus scales which are longer awned; 7) leaf shape with few, broad, short dentations and leaf apex long-attenuate; 8) achenes with longer and denser pubescence than in *H. autumnale*.

From the above, it should be noted that, although the Missouri specimen possesses a greater number of characters which result in its greater resemblance to *H. flexuosum*, nevertheless the three characters of *H. autumnale* which the specimen possesses are highly significant. It should also be noted here that the Missouri specimen further differs from typical *H. flexuosum* in having 1) the disk corollas 3.5-4 mm. instead of 2-3 mm. long, and 2) the pappus scales broadly ovate instead of lanceolate. In *H. autumnale* the pappus scales are ovate and vary from short-awned or merely short-cuspidate to long-awned. In *H. flexuosum* the pappus scales are lanceolate and, according to Dr. Rock (p. 212) "usually acute at the apex so as to form an awn." In the Missouri specimen the pappus scales are definitely awned.

Although it is true that most specimens of *H. flexuosum* show 4-merous disk flowers, it was noted during an examination of material of this species in the University of Missouri Herbarium that some Missouri specimens (*Drouet 793*, *Drouet 832*, *Jeffrey* from Boone Co., and *Steyermark 16195* from Putnam Co.) possess both quadrimorous as well as pentamerous disk flowers. At the Howell County locality where the putative hybrid specimen of *Steyermark 86003* was found, both *H. flexuosum* and *H. autumnale* were observed, although the former was the dominant species.

It is interesting to note here that Dr. Rock (p. 116) considers *H. flexuosum* as a species occupying a position morphologically "intermediate between the vernal species of the

southeastern United States and the annual-biennial species of *Helenium* in Texas and Mexico on one hand and the extremely widespread species *H. autumnale*, on the other hand." Although the possession of neutral and sterile ray-florets in *H. flexuosum* is shared by other vernal flowering species of *Helenium*, nevertheless *H. flexuosum* "does not conform to the rest of the vernal species in the remaining characters." (p. 116), and is considered "quite anomalous in many respects, as far as the other species of the section are concerned." (p. 135). One of the eight aberrancies possessed by *H. flexuosum*, as listed by Dr. Rock (p. 136), is that of the flowering period, which, in this species, extends in its range from March through November.

Based upon its "morphological anomaly and ecological diversity" Dr. Rock suggests (p. 136) that "*H. flexuosum* is probably of hybrid origin, long-standing in time . . ." In his hypothetical evaluation of the possible parentage of the hybrid origin of *H. flexuosum*, he indicates his choice of parents as 1) a species of the Section *Tetrodus* "probably the plant known as *Helenium elegans*" and 2) a vernal species, such as *H. brevifolium* or *H. campestre*, indicating *H. campestre* as the more logical choice. He believes (p. 138) that "the origin of the section *Leptopoda* [in which *H. flexuosum* is placed] has been from some styliferous-rayed member of *Helenium* or pre-*Helenium* stock."

The present Missouri collection, discussed above, would indicate hybridization between *H. flexuosum* and *H. autumnale* in portions of the geographical range of these two species. It would also indicate that *H. autumnale* may have played a role as one of the parental sources of *H. flexuosum* to account for the occasional occurrence of pentamerous, yellow-lobed disk corollas and styliferous ray florets of hybrid stock.

Specimens of this collection have been deposited in the Gray Herbarium of Harvard University and in the University of Missouri Herbarium. — INSTITUTO BOTANICO DEL MINISTERIO DE AGRICULTURA Y CRIA, CARACAS, VENEZUELA, AND RESEARCH ASSOCIATE, MISSOURI BOTANICAL GARDEN.